CLAIMS

What is claimed is:

1.   A method of manipulating an elongate member during a medical procedure, comprising:

receiving input from a user to manipulate the elongate member;

sending signals to advance the elongate member if the input directs advancement of the elongate member;

sending signals to retract the elongate member if the input directs retraction of the elongate member; and

sending signals to rotate the elongate member if the input directs rotation of the elongate member.

2.   The method of claim 1, wherein the elongate member is flexible or rigid.

3.   The method of claim 1, wherein the signals specify a speed that is proportional to movement of a pointing device.

4.   The method of claim 1, wherein the input is received from a pointing device coupled to a computer system.

5.   The method of claim 1, wherein the signals to advance the elongate member direct a motor to rotate a wheel in contact with the elongate member.

6.   The method of claim 1, wherein the signals to retract the elongate member direct a motor to rotate a wheel in contact with the elongate member.

7.   The method of claim 1, wherein the signals to rotate the elongate member direct a motor to rotate a base that is coupled to the elongate member.

8.   An apparatus for manipulating elongate members during medical procedures, comprising:

a base coupled to an elongate member, the base being capable of rotation along an axis parallel to the elongate member;

a first motor coupled to the base that advances or retracts the elongate member along the axis; and

5   a second motor coupled to the base that rotates the base, whereby the elongate member is rotated around the axis.

9.   The apparatus of claim 8, wherein the relative speed of the first and second motors provides coordinated motion.

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10.   The apparatus of claim 8, wherein the first motor advances or retracts the elongate member by rotating a wheel in contact with the elongate member.

11.   The apparatus of claim 10, further comprising a biasing mechanism
15   to bias the elongate member against the wheel.

12.   The apparatus of claim 8, further comprising a clip to retain the elongate member.

20   13.   The apparatus of claim 8, further comprising a computer system that receives user input to direct the first and second motors.

14.   A method of manipulating an elongate member during a medical procedure, comprising:
25   retracting two elongate members where a first elongate member is within the lumen of a second elongate member; and

advancing the first elongate member relative to the second elongate member.

30   15.   The method of claim 14, wherein the first elongate member is advanced to substantially counter retraction caused by the retraction.

16.   An apparatus for manipulating elongate members during medical procedures, comprising:

28

a drum coupled to two elongate members where a first elongate member is within the lumen of a second elongate member, the drum being rotatable along an axis perpendicular to the two elongate members and comprising a clip to retain the second elongate member such that when the drum rotates, the second elongate member is

5   retracted along a first direction; and

a wheel coupled to the drum such that the rotation of the drum also rotates the wheel and the first elongate member is retracted along the first direction, wherein the wheel rotates to advance the first elongate member along a second direction opposite the first direction.

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17.   The apparatus of claim 16, wherein the elongate member is advanced to substantially counter retraction caused by rotation of the drum.

18.   The apparatus of claim 16, further comprising a motor coupled to

15   the drum that rotates the drum.

19.   The apparatus of claim 16, further comprising a motor coupled to the wheel that rotates the drum.

20   20.   The apparatus of claim 16, further comprising a computer system that receives user input to direct rotation of the drum, wheel or both.